

Director's Report to the National Advisory Council on Drug Abuse

September 8, 2016

Nora D. Volkow, M.D., Director



National Institute
on Drug Abuse



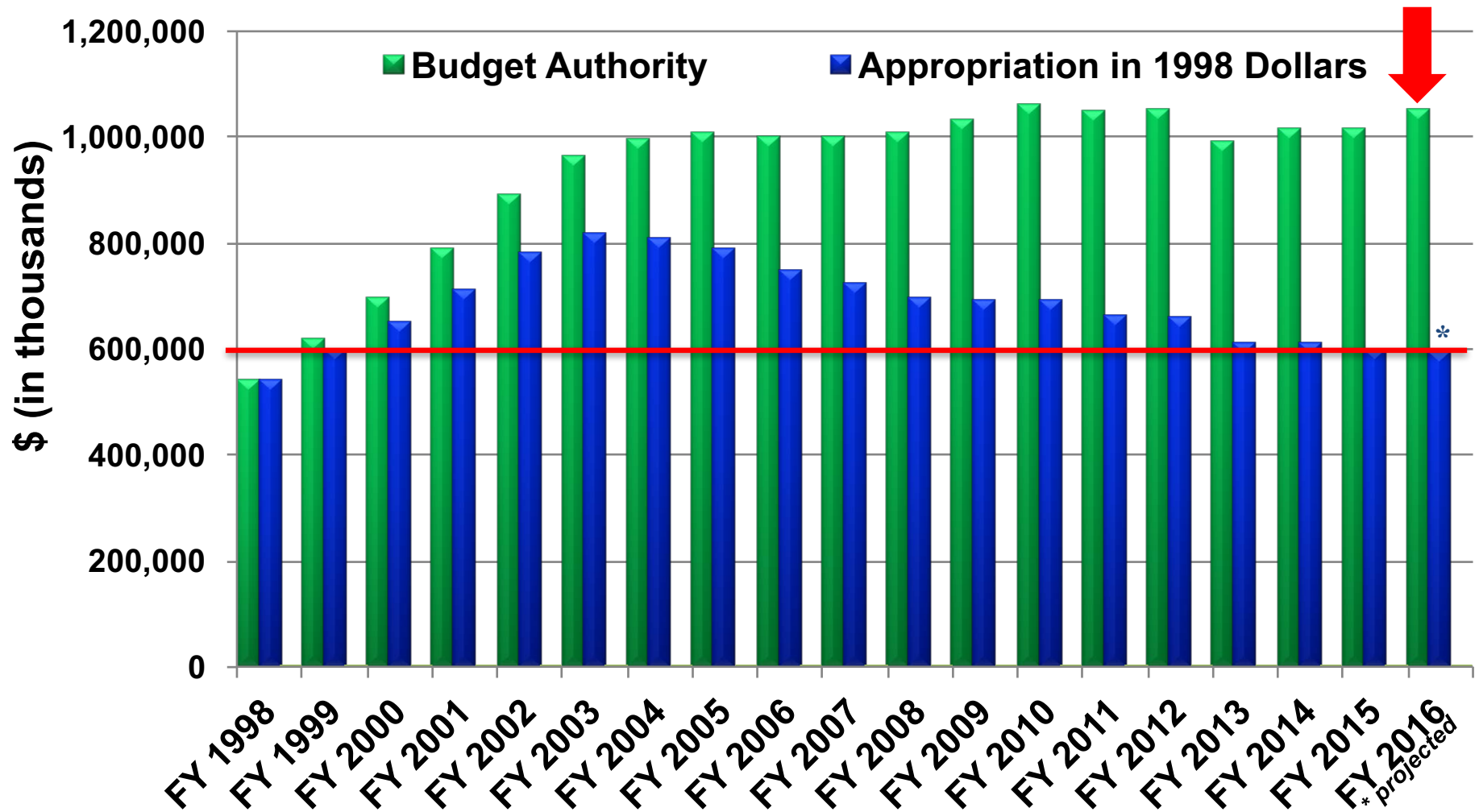
@NIDAnews

NIDA BUDGET

(Thousands)

	FY 2015 Actuals	FY 2016 Operating Plan	FY 2017 PB	FY 2017 Senate Markup
NonAIDS	\$716,833	\$756,306	\$756,306	
AIDS	\$298,862	\$294,244	\$294,244	
TOTAL	\$1,015,695	\$1,050,550	\$1,050,550	\$1,103,032

NIDA Program Level in Appropriated Dollars and Constant 1998 Dollars



30% of AIDS Budget, which is for AIDS research is re-competed based on NEW NIH HIV priorities

Director's Report to the National Advisory Council on Drug Abuse

- **Budget Update**

- **What's New @ HHS/NIH?**

- **Recent NIDA
Activities & Events**

Joshua A. Gordon, M.D., Ph.D

Director, National Institute of Mental Health



- Associate Professor Psychiatry, Columbia University Medical Center and New York State Psychiatric Institute
- Associate Director, Adult Psychiatry Residency Program
- Research on mice with relevant mutations to schizophrenia, anxiety and depression (neurophysiology and optogenetics)
- M.D./Ph.D. University of California, San Francisco
- Psychiatry Residency and Fellowship at Columbia University

THE BRAIN INITIATIVE®

BRAIN: *Where Are We?*



**President
Announces
BRAIN
Initiative**
April 2013

**1st meeting of
the BRAIN
MCWG**
August 2014



**1st BRAIN PI
meeting**
*November
2014*

**Neuroethics
Workgroup
Established**
August 2015



**2nd BRAIN PI
meeting**
December 2015

**MCWG reviews
FY 2016
Pay Plans**
August 2016

**BRAIN
2025
Report
released**
June 2014



**1st NIH BRAIN
awards**
September 2014



**1st BRAIN
Initiative Alliance
discussion**
July 2015

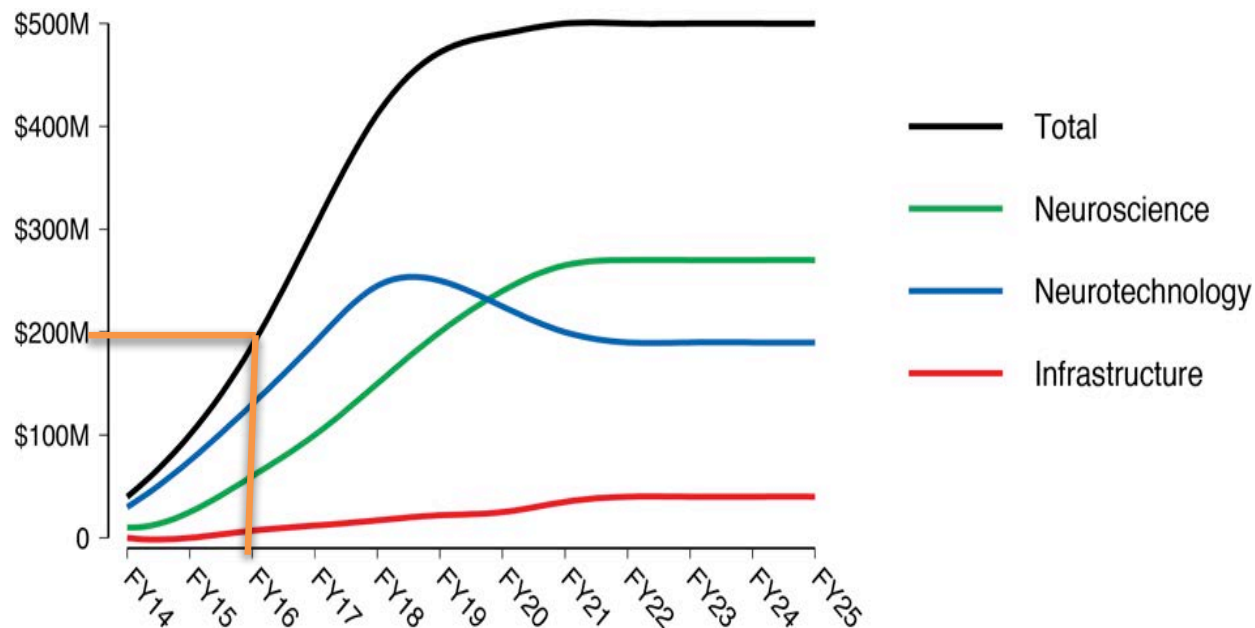


**2nd NIH BRAIN
awards**
September 2015

**MCWG clears
FY 2016
Concepts**
February 2016

THE BRAIN INITIATIVE®

Recommended Budget BRAIN WG



Ramp up \$400M/yr by FY 2018
Plateau at \$500M/yr by FY2021
Total \$4.5B by FY 2025



Anne Churchland
@anne_churchland



Following

Who aims to shape the future of
[#neuroscience](#) ? [@NINDSdirector](#) just
announced [#NIH](#) seeks [#BRAIN](#) Initiative
director



Walter J. Koroshetz [@NINDSdirector](#)

[#NIH](#) seeks visionary scientist to Direct [#BRAIN](#) Initiative, apps
reviewed starting Aug 8: [1.usa.gov/28QXgzO](https://www.1.usa.gov/28QXgzO)

NIH is recruiting

- New **BRAIN Director**
- New **BRAIN Program Directors/Analysts** that will split time between BRAIN and the BRAIN-ICs where they are embedded

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- **Budget Update**
- **What's New @ HHS/NIH?**

- **Recent NIDA
Activities & Events**

Priority Areas

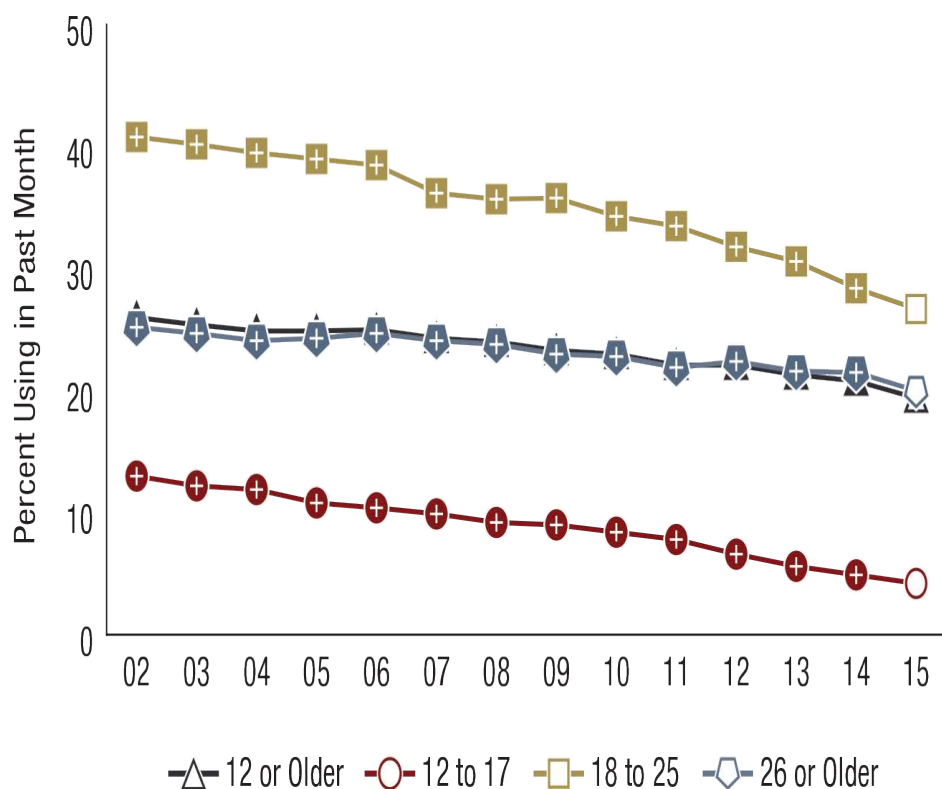
Prevention Research

(Children & Adolescents)
genetics/epigenetics
development
environment
co-morbidity

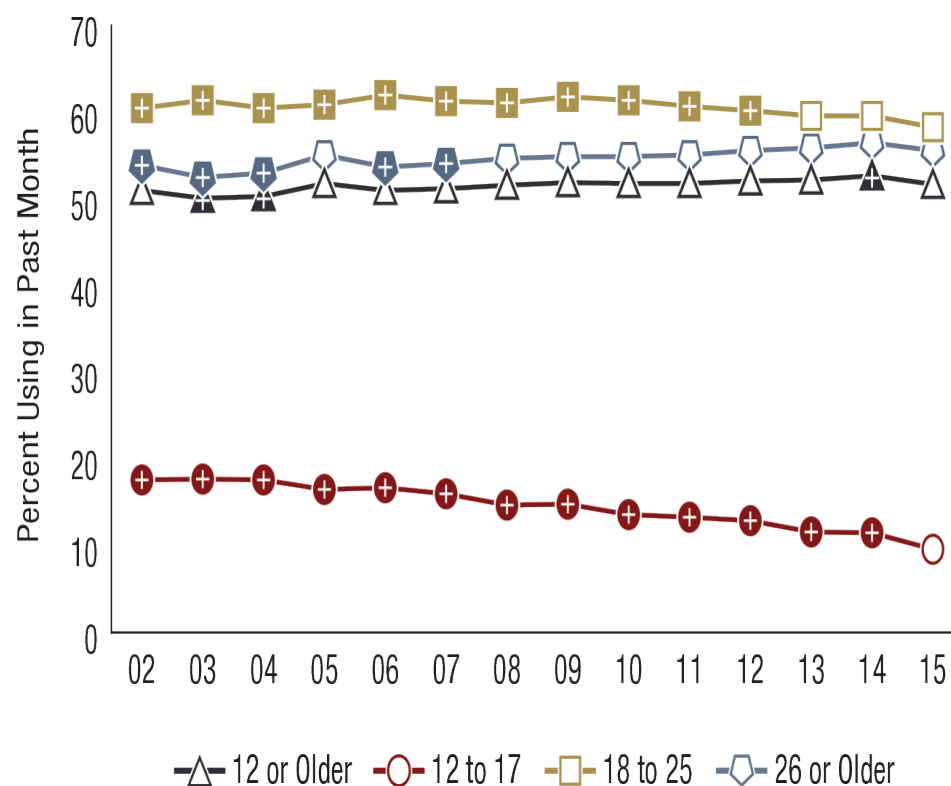


2015 National Survey on Drug Use and Health

% Past Month Cigarette Use Aged 12 or Older



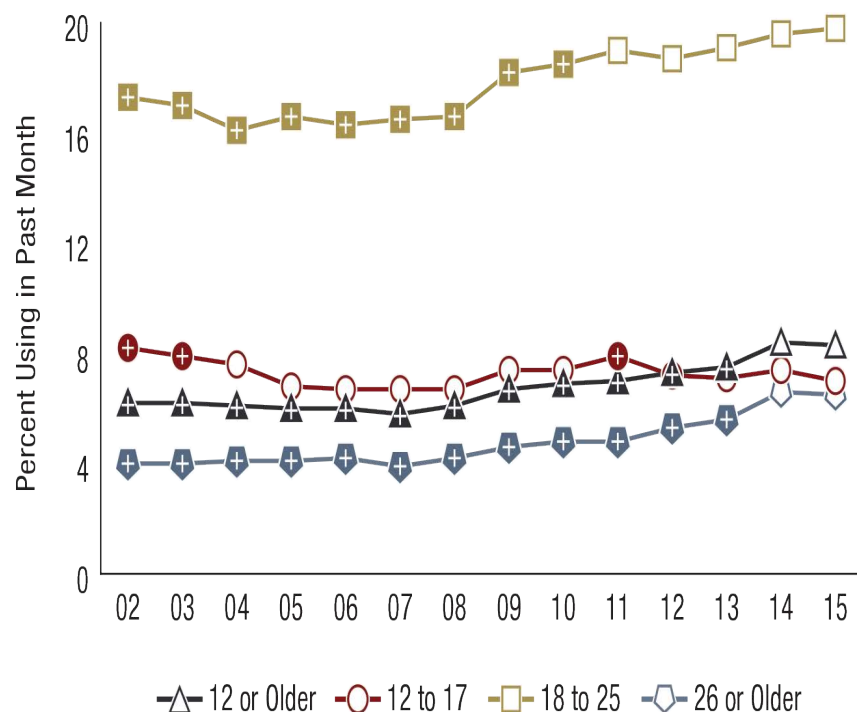
% Past Month Alcohol Use Aged 12 or Older



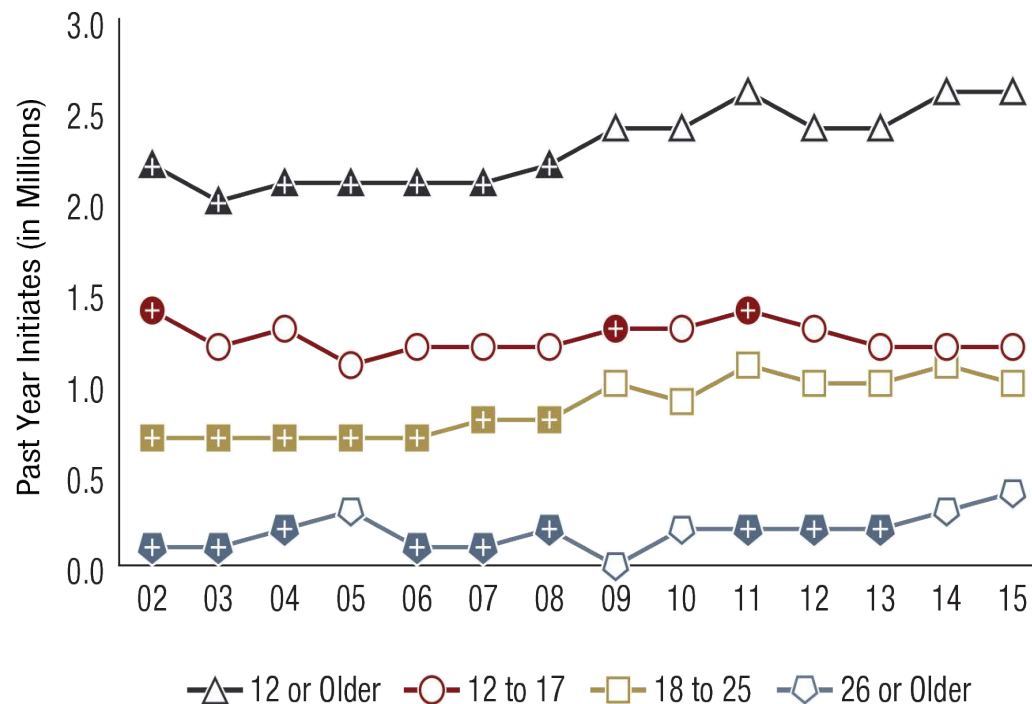
+ Difference between this estimate and the 2015 estimate is statistically significant at the .05 level.

2015 National Survey on Drug Use and Health

% Past Month Marijuana Use Aged 12 or Older

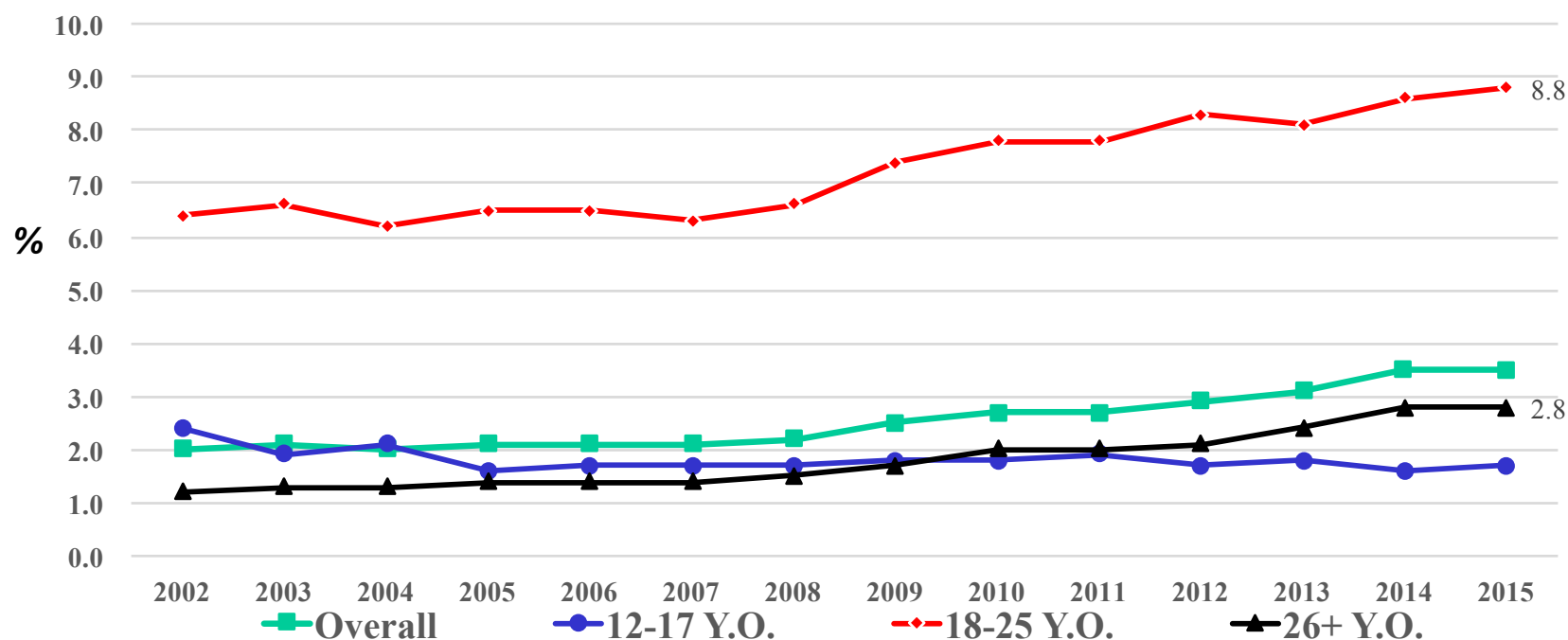


Past Year Marijuana Initiates Aged 12 or Older, by Age Group (in Millions)



+ Difference between this estimate and the 2015 estimate is statistically significant at the .05 level.

Daily or Near Daily Marijuana Use in Past Month among Persons Aged 12 or Older in the United States, 2002-2015



SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health

Marijuana and Cannabinoids: A Neuroscience Research Summit

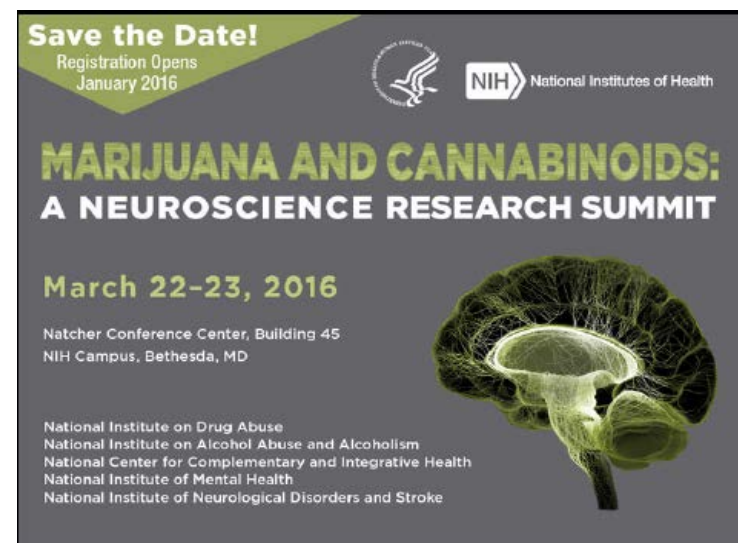
March 22–23, 2016

NIDA, NIAAA, NCCIH, NIMH, NINDS

- Addressed adverse and potential therapeutic effects of marijuana to neurological, psychiatric disorders and pain, other cannabinoids, and the endocannabinoid system.
- Goal: to ensure evidence-based information is available to inform practice and policy, particularly relevant at this time given the shifting landscape regarding the recreational and medicinal use of marijuana

Meeting Summary can be found at:

<https://www.drugabuse.gov/sites/default/files/briefmjsummitmeetingsummary.pdf>



Hawaii J Med Public Health. 2014 Sep; 73(9): 283–287.

Marijuana Use and Maternal Experiences of Severe Nausea During Pregnancy in Hawai‘i

Emily K Roberson, PhD, MPH, Walter K Patrick, MD, PhD, MPH,† and Eric L Hurwitz, DC, PhD

In Hawaii 6.0% women reported using marijuana the month before pregnancy, and 2.6% during pregnancy.

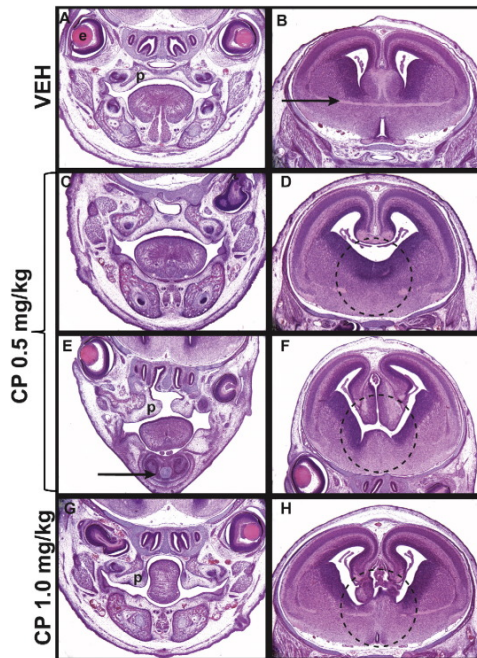
BMJ Open 2016;6:e009986 doi:10.1136/bmjopen-2015-009986

Prenatal exposure to cannabis and maternal and child health outcomes: a systematic review and meta-analysis

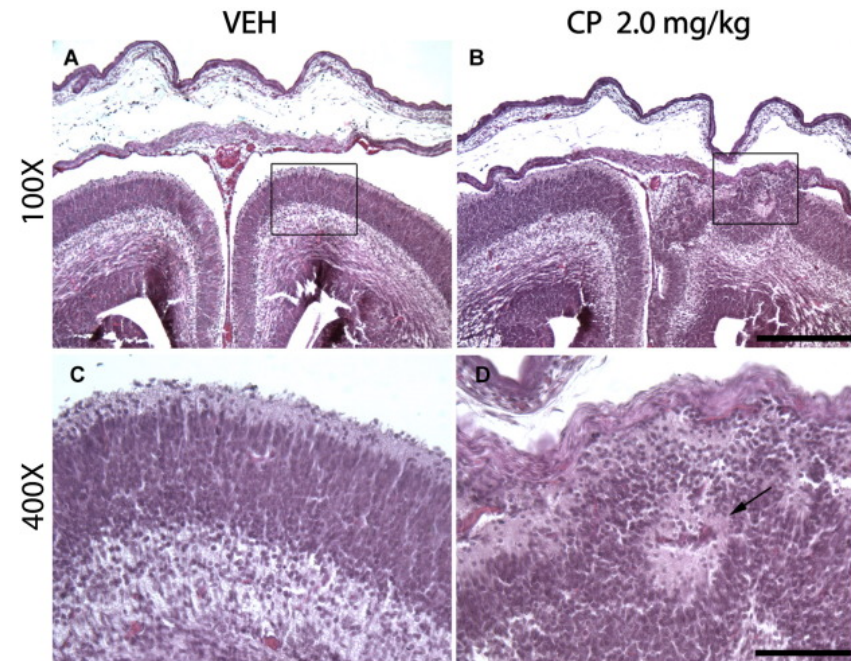
J K L Gunn¹, C B Rosales², K E Center³, A Nuñez⁴, S J Gibson⁵, C Christ⁶, J E Ehiri⁵

Women who used cannabis in pregnancy had increased odds of anaemia (pooled OR (pOR)=1.36). Infants exposed to cannabis in utero had decreased birth weight (pOR=1.77) and more likely to need placement in the neonatal ICU (pOR=2.02).

Dose-dependent Teratogenicity of the Cannabinoid Agonist CP-55,940 in mice



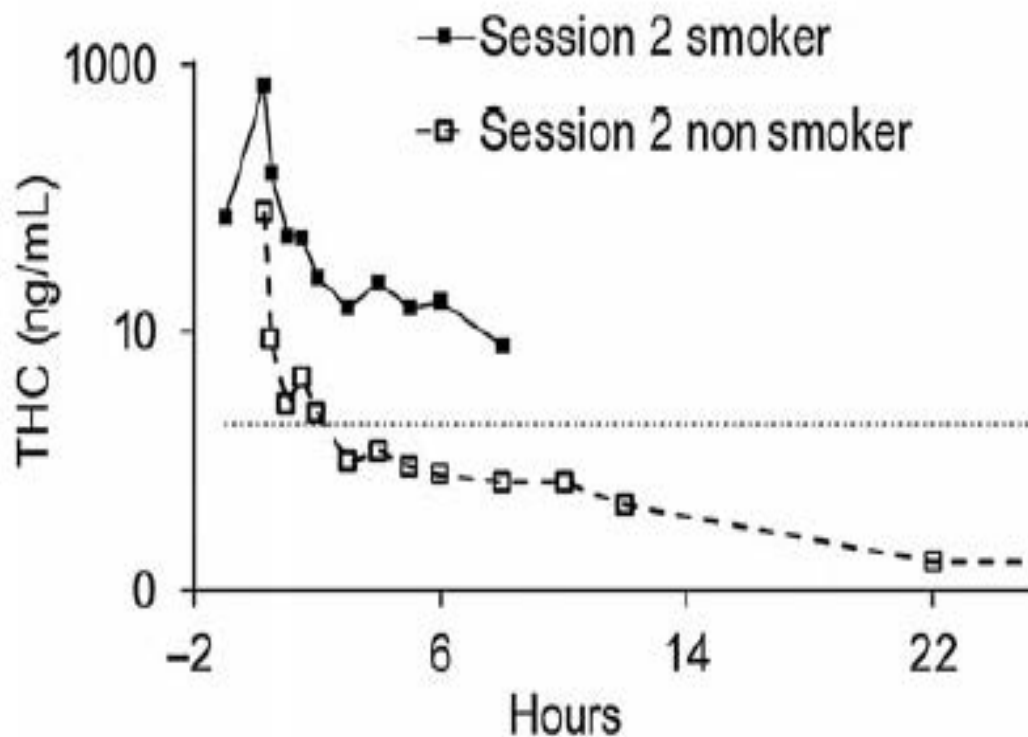
Histological sections of control and CP 55,940-treated GD 17 fetal mice showing abnormalities of the brain, eyes, palate, and mandible.



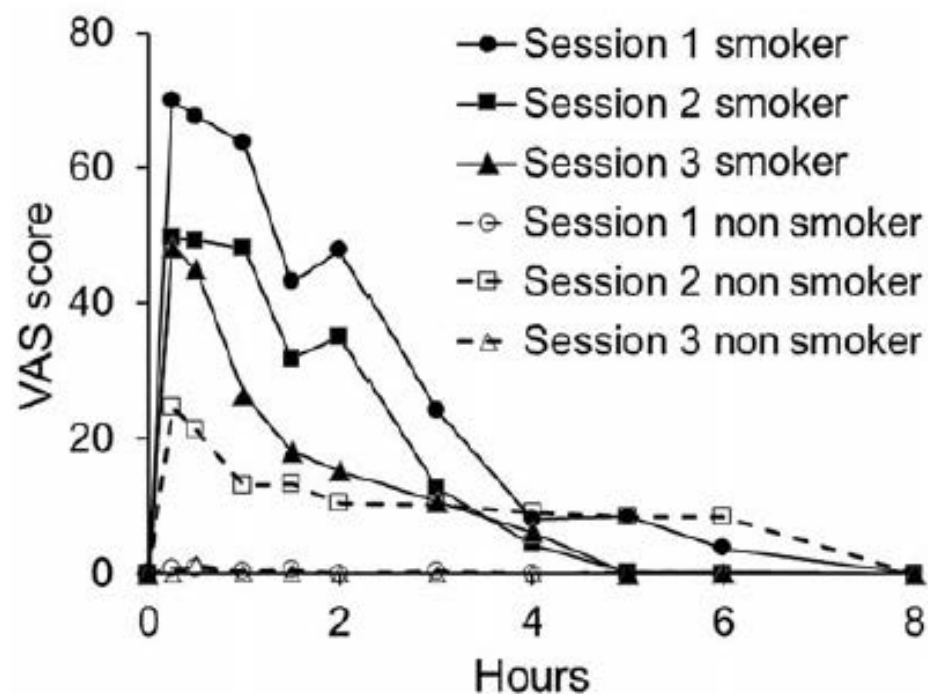
Histological sections from control and fetus from a CP 55,940 treated mother. Notice severe dysplasia in left hemisphere of CP-55940-exposed fetus.

Exposure to Secondhand Cannabis Smoke

THC Concentration in Oral Fluid of Non-Smokers and Smokers



Self-Reports of 'Pleasant Drug Effect' By Nonsmokers and Smokers



Cone EJ et al., *Journal of Analytical Toxicology* 2015;39:497–509.



UNITED STATES

Drug Enforcement Administration

TOUGH WORK, VITAL MISSION



***July 8, 2016 -- DEA NIDA Visit and Town Hall
Acting Administrator Chuck Rosenberg***

August 11, 2016 – DEA Press Release

- DEA Responds to Two Petitions to Reschedule Marijuana: **Denies** **petitions** to reschedule marijuana under the Controlled Substances Act “... **marijuana remains a schedule I** because it **does not meet criteria for accepted medical use in USA**, there is **a lack of accepted safety for its use under medical supervision**, and **it has a high potential for abuse**.
- **Increase Number of Authorized Marijuana Manufacturers Supplying Researchers.** This will provide researchers with a more varied supply of marijuana. At present, only the University of Mississippi (operating under a NIDA contract) is authorized.



Adolescent Brain Cognitive Development
Teen Brains. Today's Science. Brighter Future.

ABCD Update

- New collaborations with CDC Division of Adolescent and School Health and the National Institute of Justice
- Multi-site pilot study conducted to refine and shorten protocol
- Site initiation visits underway

**Official Launch of ABCD Study Recruitment –
September 1, 2016**

Press Release Date – September 13, 2016

Congressional Briefing – September 19, 2016

New NIDA FOAs

Avenir Award Program for Genetics or Epigenetics of Substance Use Disorders (DP1) [PAR-16-357](#)

Application Due Date(s): October 19, 2016; October 19, 2017; October 19, 2018.

- *Support early stage investigators proposing highly innovative studies on genetics or epigenetics of addiction; including novel methods or approaches.*
- *Investigators outside the field of addiction are encouraged to apply.*
- *May lack the preliminary data required for an R01*
- *Propose high impact research*
- *Investigators show promise of being tomorrow's scientific leaders in genetics or epigenetics of SUD.*

Priority Areas

Prevention Research

(Children & Adolescents)
genetics/epigenetics
development
environment
co-morbidity

Treatment Interventions

(New Targets & New Strategies)

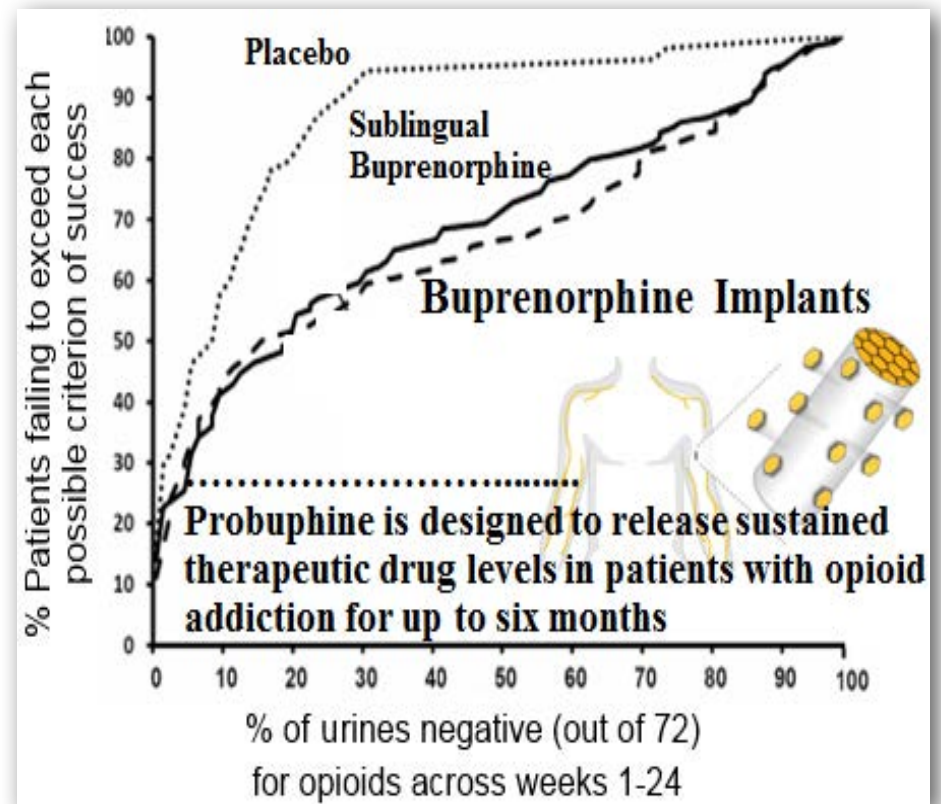


Improving Treatments for Addiction:

Extended Release Medications Improve Compliance

- Implanted buprenorphine may improve compliance
 - Trial: buprenorphine implants vs. placebo for 6 months

FDA approval – May 26, 2016

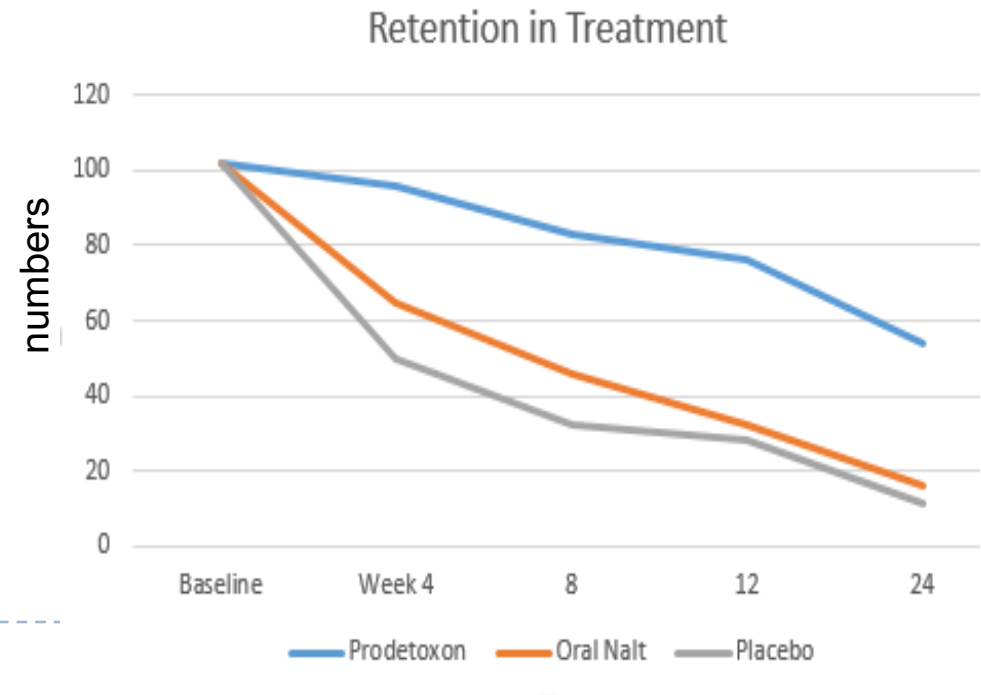


Rosenthal et al. *Addiction*. (2013)

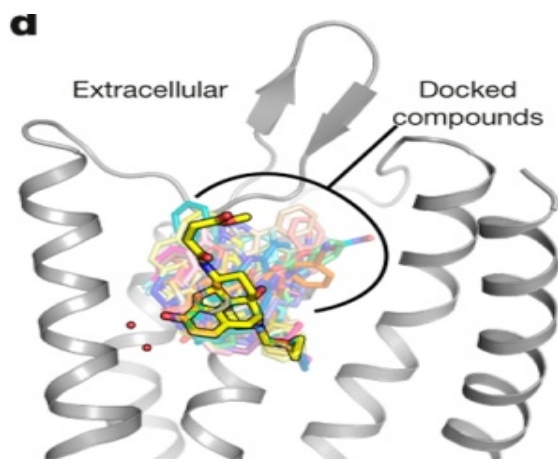
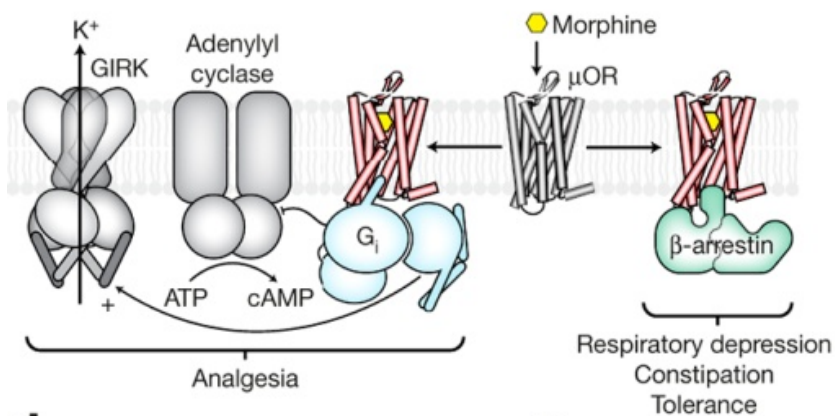
Anhedonia, Depression, Anxiety, and Craving In Opiate Dependent Patients Stabilized On Oral Naltrexone Or An Extended Release Naltrexone Implant

- Opioid dependent patients in Russia
- Double blind Randomized Clinical Trial for 6 months (102ss/cell)
 1. Extended release implantable naltrexone (Prodetoxon®) q. 2 m.
 2. Oral naltrexone (Antaxone®) 50 q.d.
 3. Matched placebo (oral and implant)
- Monthly assessments
- Riboflavin to monitor adherence

Neither oral nor implantable naltrexone increased craving, depression, anxiety or anhedonia in patients who continued treatment and did not relapse



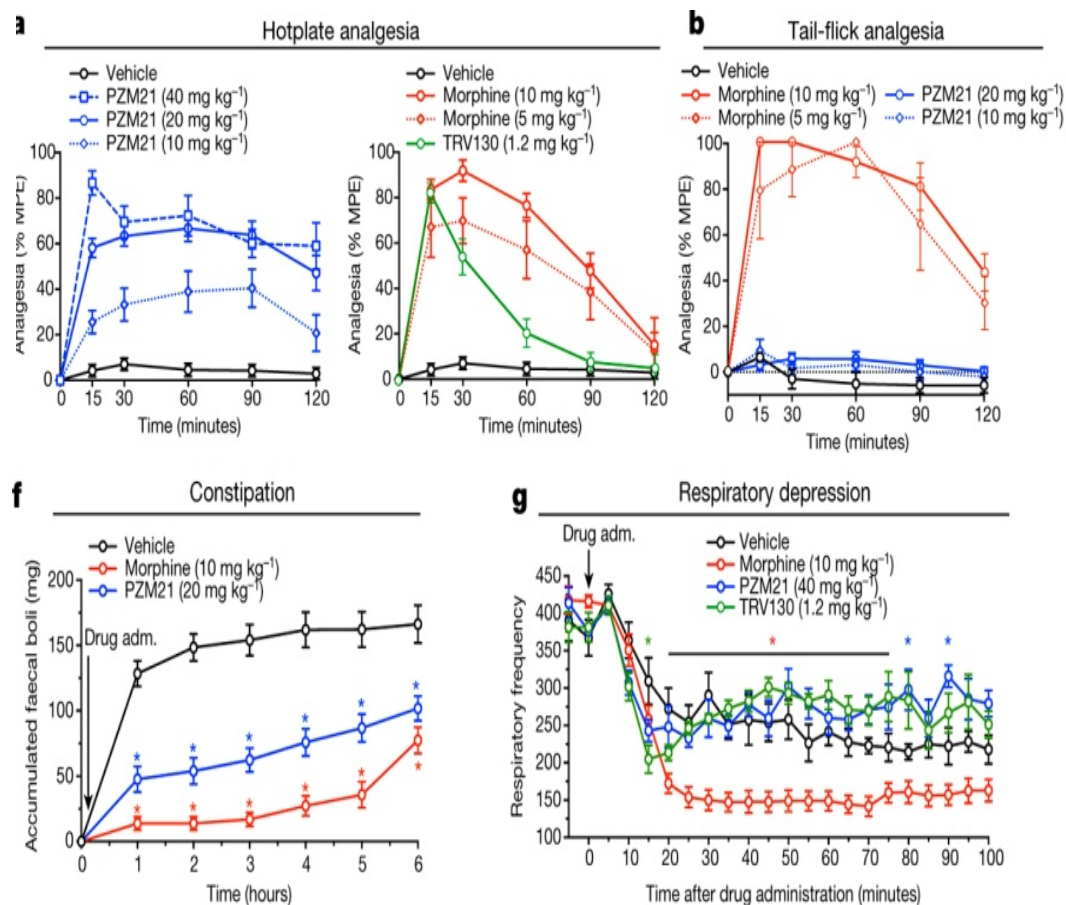
Structure-based Discovery Of Opioid Analgesics With Reduced Side Effects



nature

A Manglik et al. Nature 1–6 (2016)

PZM21 is an analgesic with reduced liabilities



Priority Areas

Prevention Research

(Children & Adolescents)
genetics/epigenetics
development
environment
co-morbidity

Treatment Interventions

(New Targets & New Strategies)

HIV and Drugs

Prevention
Treatment



NIH Overarching AIDS Research Priorities

(August 12, 2015)

1. Reduced **incidence**, including vaccines
2. Next generation of HIV therapies with better safety and ease of use
3. Research toward a cure
4. HIV-associated **comorbidities** and co-infections

Cross cutting areas: Basic research, **health disparities**, and training

Extramural: OAR reviewed 1,207 grants eligible for 2016 renewal.
242 grants were low priority (\$65.2M); \$14.2M from NIDA.

Intramural: OAR reviewed 56 projects
26 projects were low priority (\$6.6M); \$3.3M from NIDA.



New NIDA FOAs

**Mechanisms of Immune Activation and Inflammation:
HIV Infection, ART, and Drugs of Abuse (R01) ([RFA-DA-17-013](#))**

Application Due Date(s): November 18, 2016.

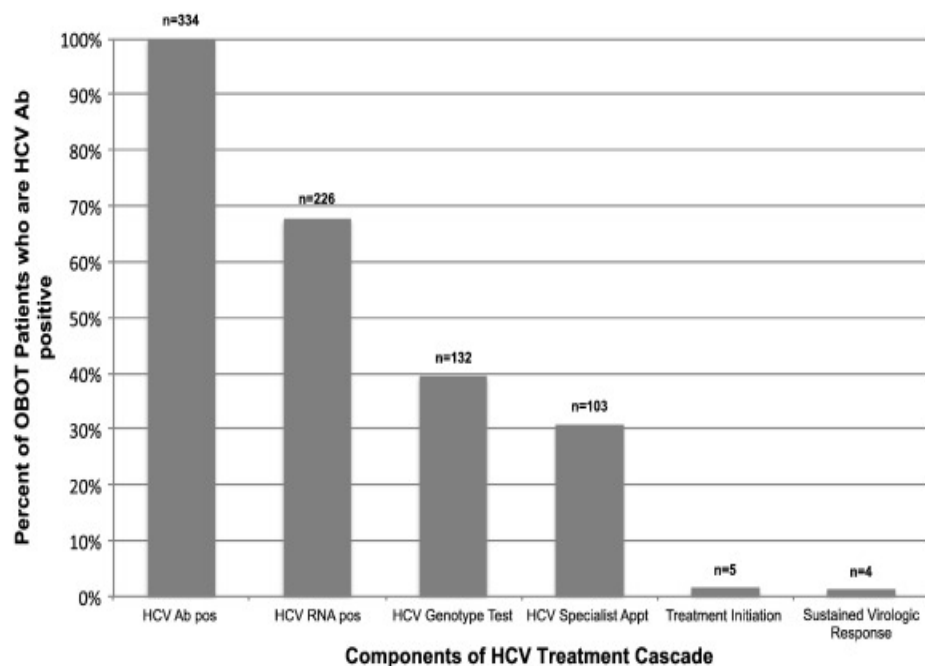
Research on molecular mechanisms of HIV infection-induced immune activation and inflammation in the presence of antiretroviral therapy (ART) agents and drugs of abuse.

**Silencing of HIV-1 Proviruses (R61/R33) ([RFA-AI-16-038](#))
(with NIAID & NIMH)**

Application Due Date(s): December 7, 2016.

Exploratory and developmental research on identification and optimization of small molecules or RNAs that interact with host epigenetic machinery to mediate long-term or permanent epigenetic silencing of HIV-1 proviruses.

Hepatitis C Virus Testing & Tx Among Persons Receiving Buprenorphine in an Office-Based Program for Opioid Use Disorders



HCV treatment cascade among HCV+ patients in Office Based Opioid Treatment (n = 334).

NIDA-Appalachian Regional Commission (ARC) Partnership

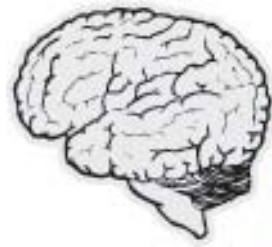


Fund grants to address increased opioid IDU OD, HIV and HCV

- One-year planning grants to:
 - problem's scope; contributing health trends
 - Identify resources, obstacles
- 4 Grants Expected to be Funded by 30 September: RFA-DA-16-015

Broaden program for FY2017 with ARC to include CDC and SAMHSA

2016



ADDICTION SCIENCE AWARD



1st



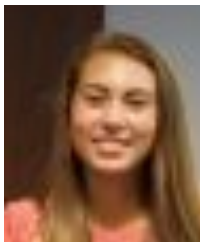
Making the Mind Matter: Stress Mindset Effects on Sleep Quality, Stress Response, Emotion and Cognition in the Developing Adolescent Brain and the Role of the Prefrontal-Amygdala Circuit
Kashfia Rahman--Brookings High School in Brookings, SD

2nd



Effects of E-Cigarette Vapor on *Drosophila melanogaster*
Lindsay Poulos --Episcopal School of Jacksonville in Jacksonville, FL

3rd



Development of a Caffeine Addiction Paradigm to Examine How Dietary Restriction and Level of TOR Signaling Modulate the Effects of Drugs
Rachel Mashal -- John F. Kennedy High School in Bellmore, NY

Recent and Upcoming Congressional Activities

5/12/16 **AAAS Briefing on *Marijuana***

6/22/16 **Congressman Dold – *Topic: Opioids***

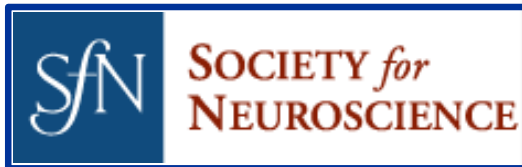
6/30/16 **ACNP Senate Briefing on *Opiate Addiction & Overdose***

7/26/16 **Senator Thad Cochran's
Staff Visit to NIH – *Topic:
Marijuana***

9/9/16 **Congressman Blumenauer**

9/19/16 **FON Hill Briefing on *ABCD Study***





Preliminary Agenda

Relapse and Recovery: from Mechanistic Understanding to Translational Research

- Session I. Drug Memory and Molecular Drivers of Relapse
- Jacob P. Waletzky Memorial Award Lecture
- Joint NIDA-NIAAA Early Career Investigator Showcase [ECIS]
- Session II. Circuit Mechanisms of Relapse
- Session III. Relapse risk and treatment